

2. NON-TECHNICAL ABSTRACT

Colorectal cancer is diagnosed in nearly 150,000 patients every year in the United States. Once the disease becomes advanced and spreads to other sites in the body there is no effective treatment that prolongs survival. Recently a tumor antigen found on most colon cancer cells, called carcinoembryonic antigen or CEA, was found to have areas that could induce an immune response in human patients. The purpose of this study is to determine if a vaccine constructed to immunize against this CEA protein is safe, has any side effects, can be given in high doses, and can induce an immune response to the CEA.

The method of making the vaccine uses a special virus called ALVAC which is a canarypox virus. This virus does not replicate in human cells and should therefore prove to be much safer than vaccinia virus, which does divide in human cells. ALVAC has been shown to induce strong immune responses in animals and has been very safe. The vaccine will also contain the human gene for CEA, the tumor antigen, and a costimulatory molecule called B7. This molecule binds to T-cells and helps make a stronger immune response. Studies in animals have shown that the addition of B7 to a vaccine results in stronger T-cell immune responses and better anti-tumor effects. This vaccine has not been studied in human patients previously, but a vaccinia virus containing the CEA gene was studied. A trial of 17 patients was performed and there were no major side effects and patients tolerated even the highest doses of the virus. Vaccinia virus is considered more harmful to patients than the ALVAC virus.